

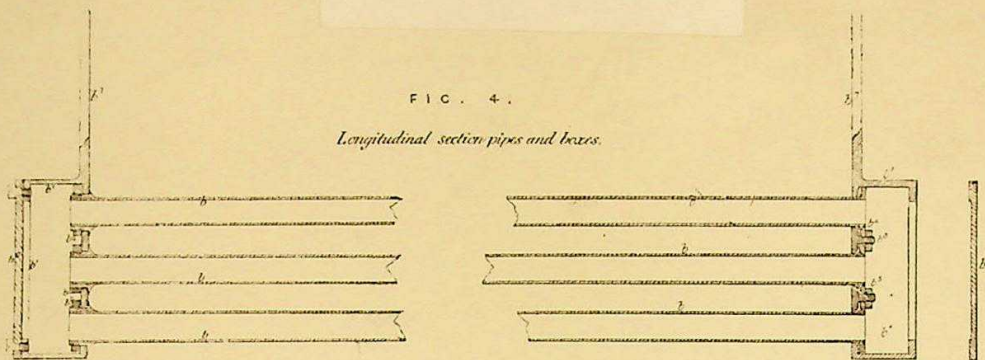
165-77

BRITAIN
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1861

FIG. 4.

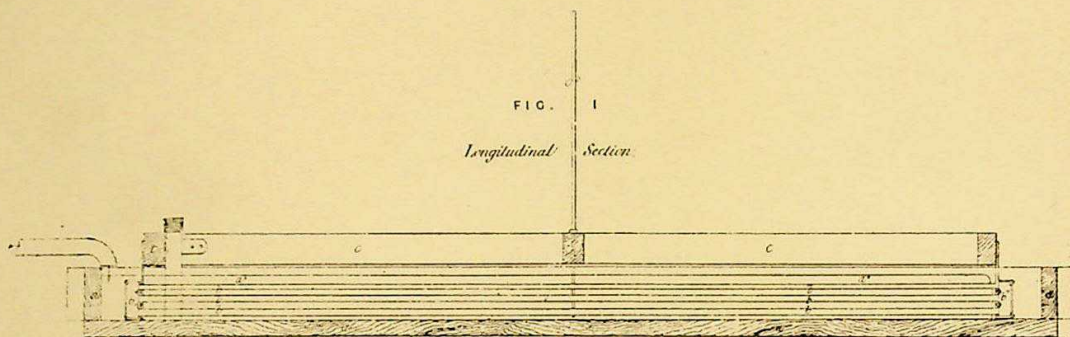
Longitudinal section pipes and boxes.



A.D. 1861, Dec. 18, N° 3179.
FONTFÈVRE'S SPECIFICATION

FIG. 1

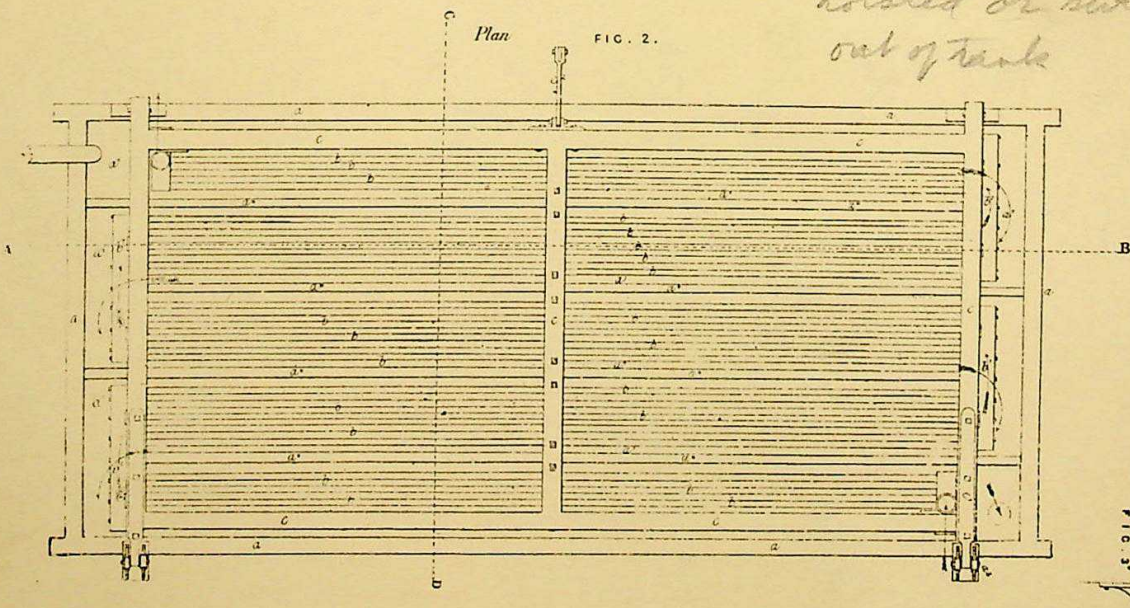
Longitudinal Section.



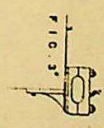
*pipes adapted to be
hoisted or swung
out of tank*

Plan

FIG. 2.



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Dec. 1861
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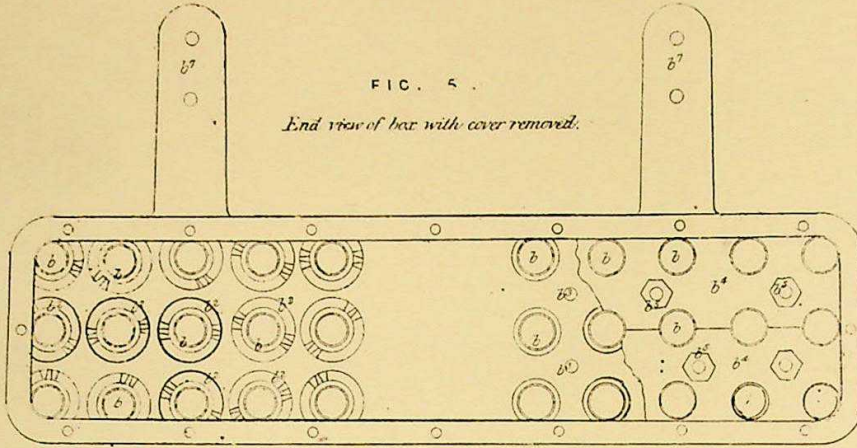


FIG. 5.
End view of box with cover removed.

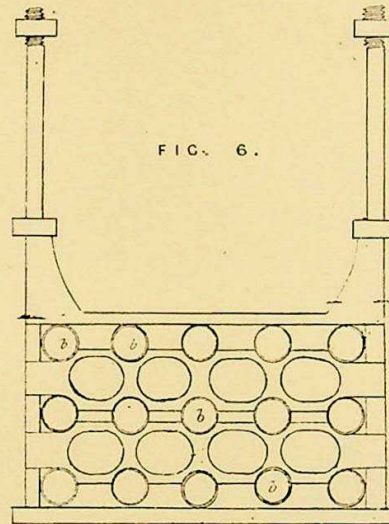


FIG. 6.

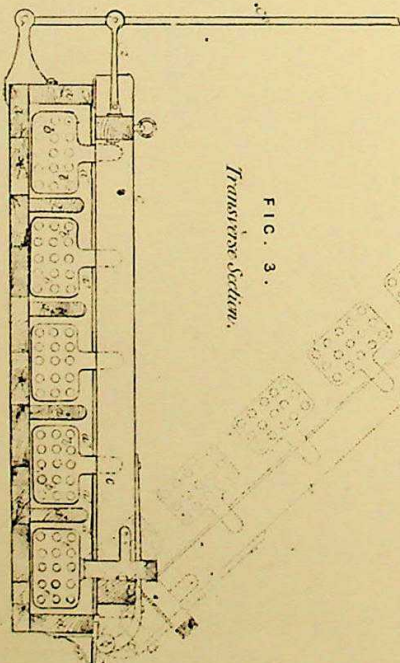


FIG. 3.
Transverse section.

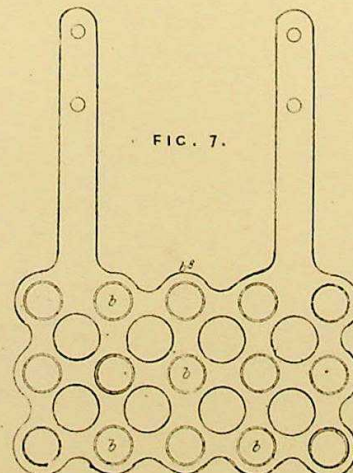


FIG. 7.

3.179
 1861

Pontifex's Improvements in Refrigerators for Cooling Worts or other Liquors.

another set; or, if preferred, the intermediate boxes may be done away with, and the pipes may be made continuous through their entire length, a proper number being placed in the box where the wort or other liquor enters and continued backwards and forwards through the whole length of the troughs of the back, ending in a similar box where the wort or other liquor is delivered. 5 The pipes are carried by a frame in the usual manner, and the frame has hinges on one side and is lifted by pullies and a crab or windlass of the ordinary construction.

Another part of my Invention consists in bringing the cold liquor into more active contact with the pipes containing the wort or other liquor to be cooled. 10 For this purpose I prefer to construct the hinge used for lifting the frame with slots in the plates forming one portion of the hinge, and on the side of the refrigerator back I place rollers so arranged that the frame carrying the pipes is free to move sideways on these rollers to any extent desired. I actuate this frame by means of connecting rods working from eccentrics 15 or cranks, which excentrics or cranks I prefer to place on the shaft which carries the drum employed to lift the frame when out of use. This shaft can be worked by steam or other motive power. The apparatus may be used without causing the frame and pipes to oscillate, and the wort or other liquor to be cooled may be passed through the pipes above described, or along 20 the trough in the back as preferred.

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Charles Pontifex in the Great Seal Patent Office on the 18th June 1862.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, CHARLES 25 PONTIFEX, of St. Paul's Road, Islington, in the County of Middlesex, and of Shoe Lane, in the City of London, Coppersmith and Vat Maker, send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Eighteenth day of December, in the year of our 30 Lord One thousand eight hundred and sixty-one, in the twenty-fifth year of Her reign, did, for Herself, Her heirs and successors, give and grant unto me, the said Charles Pontifex, Her special licence that I, the said Charles Pontifex, my executors, administrators, and assigns, or such others as I, the said Charles Pontifex, my executors, administrators, and assigns, should 35 at any time agree with, and no others, from time to time and at all times

Pontifex's Improvements in Refrigerators for Cooling Worts or other Liquors.

thereafter during the term therein expressed, should and lawfully might make, use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "**IMPROVEMENTS IN REFRIGERATORS FOR COOLING WORTS OR OTHER LIQUORS,**" upon the
5 condition (amongst others) that I, the said Charles Pontifex, my executors or administrators, by an instrument in writing under my, or their, or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within
10 six calendar months next and immediately after the date of the said Letters Patent.

NOW KNOW YE, that I, the said Charles Pontifex, do hereby declare the nature of the said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following
15 statement thereof, that is to say :—

This Invention has for its object improvements in refrigerators for cooling worts or other liquors used by brewers or distillers, or for other purposes; and my improvements consist, first, of the arrangement of refrigerators having a number of pipes laid side by side and over each other in each of the troughs
20 or channels through which the wort or other liquor travels. The ends of each set of pipes in each trough are fixed into a metal box so arranged that by removing a cover on the box the inside of the pipes may be easily got at to be cleaned or repaired, and any one or more of the pipes can thus be readily removed or exchanged if desired. The cooling liquid or the liquor to be
25 cooled, as the case may be, gets thoroughly mixed in these boxes after passing out of one set of pipes, and before entering another set; or, if preferred, the intermediate boxes may be dispensed with and the pipes may be made continuous through their entire length, a proper number being placed in the box where the wort or other liquor enters and continued backwards and
30 forwards through the whole length of the troughs of the "back" ending in a similar box where the wort or other liquor is delivered. The pipes are carried by a frame in the usual manner, and the frame has hinges on one side, and is, if required, lifted by pullies and a crab or windlass of the ordinary construction.

35 Another part of my Invention consists in bringing the cold liquor into more active contact with the pipes containing the wort or other liquor to be cooled when the apparatus is thus arranged to act; but this may be reversed, the cold liquid being passed through the pipes. For this purpose I prefer to construct the hinge used for lifting the frame with slots in the plates forming

Pontifex's Improvements in Refrigerators for Cooling Worts or other Liquors.

one portion of the hinge, and on the side of the refrigerator "back" I place rollers so arranged that the frame carrying the pipes is free to move sideways on these rollers to any extent desired. I actuate this frame by means of connecting rods working from excentrics or cranks, which excentrics or cranks I prefer to place on the shaft which carries the drum employed to lift the frame 5 when out of use. This shaft can be worked by steam or other motive power. The apparatus may be used without causing the frame and pipes to oscillate, and the wort or other liquor to be cooled may be passed through the pipes above described, or along the troughs in the "back," as may be preferred.

And in order that my Invention may be most fully understood and readily 10 carried into practice, I will proceed to describe the Drawing hereunto annexed.

DESCRIPTION OF THE DRAWING.

Figure 1 shows a longitudinal section, Figure 2 a plan, and Figure 3 a transverse section of a refrigerator, constructed and arranged according to my 15 improvements; the other Figures show some of the parts on a larger scale.

a , a , is a "back" or vessel formed into a series of longitudinal troughs a^1 , a^1 , by the divisions a^* , a^* , and it is generally preferred to pass the wort or other liquor to be cooled through the series of troughs, but for some purposes it may be more convenient to reverse this arrangement; b , b , are a series of 20 pipes carried by the frame c , as is well understood. The ends of the pipes b , b , in each trough are fixed into metal boxes b^1 , b^1 , in the manner shown at Figures 4 and 5. In one arrangement the end of each pipe b has a screw and collar formed thereon, and is fixed by a screw nut b^2 within the box. In the other arrangement the ends of the pipes b are quite plain, and are passed 25 through corresponding holes in the side of the box, in which screw studs or pins b^2 are fixed; india-rubber rings or other elastic washers are then placed over the ends of the pipes, and the plate or plates b^4 , having holes corresponding with the position of the series of pipes b , and screw studs b^3 is placed over the whole, and screwed up tight by screw nuts b^5 , so as to compress the 30 rings or washers between the plate b^4 and the inner side of the box b^1 , thus forming a perfectly tight joint; b^6 is the cover of the box, which is fixed by screws, as shown, and it will thus be seen that the pipes b can be readily got at to be cleaned or repaired when required. The boxes b^1 are fixed to the frame c by the arms b^7 , and in the arrangement shown, the series of pipes b are supported 35 about the middle, or at other parts of their length by the open metal or other frame b^8 (two forms of which are shown separately at Figures 6 and 7), fixed by arms to the frame c . The frame c has hinges or joints c^1 , which rest on

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bearings at a^2 , a^2 , fixed on the vessel a , and the frame c is capable of being raised by pullies or otherwise into the position shown by the dotted lines in Figure 3, so as to lift the series of pipes b out of the troughs a^1 , a^1 , for the purpose of cleaning the apparatus when required. The hinges or joints c^1 , and 5 bearings a^2 are so formed that the frame c , together with the pipes b and boxes b^1 can, if desired, be moved to and fro in the troughs a^1 , a^1 , and thus bring the cooling medium into more active contact with the liquid to be cooled. For this purpose the hinges or joints c^1 are furnished with small wheels or rollers, which rest on the bearings a^2 , a^2 , which may, if preferred, 10 be formed with slotted openings, as shown at Figure 3*. Motion is given to the frame c by attaching the link c^2 to the lever or rod c^3 , which may be actuated so as to impart a to-and-fro motion to the frame c by a crank or excentric worked by steam power, or in any other convenient manner. The to-and-fro motion given to the frame c and pipes b may be advantageously 15 applied to cleansing the exterior of the pipes by moving them quickly to and fro in the vessel a , which is then filled with water for that purpose.

In witness whereof, I, the said Charles Pontifex, have hereunto set my hand and seal, this Eighteenth day of June, in the year of our Lord One thousand eight hundred and sixty-two.

20

CHARLES PONTIFEX. (L.S.)

Witness,

J. G. TONGUE, Patent Agent,
34, Southampton Buildgs. W.C.

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Printers to the Queen's most Excellent Majesty. 1862.